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EXPLORATORY ANALYSIS OF GAS EMISSIONS FROM NON-COMPLIANT MUNICIPAL LANDFILL USED FOR ENERGETIC EVALUATION

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Abstract

This paper presents a research method for the exploratory analysis of non-compliant municipal waste landfills by determining the gas composition of emissions. The proposed method has the following stages: establishing municipal landfill surface contour by topographic measurements; setting measuring points on the deposit surface; setting the number of points needed and their spatial coordinate; field location of points for making exploratory measurements; making and recording spatial and temporal exploratory measurements; drawing the concentration distribution maps determined by the topographic structure analyzed; exploratory analysis and interpretation of measurement results and potential energy area determination. The method was used for "Pata Rat" non-compliant landfill, nearby Cluj-Napoca (Romania). Results interpretation shows that the stored amount suffered an important decrease by waste degradation reactions. The description of the current state of the deposit is made by analyzing the landfill gas composition. This sets out potential areas that could be further analyzed by determining the evolution of the composition of landfill gas. Basically, the goal is mainly to determine the areas of exploitation potential and less to characterize this area through qualitative and quantitative explanations the degradation reactions. The investigation was done by analysing deposit composition and landfill gas flow in storage conditions, related to a non-compliant landfill with 35 years of activity.

Key words: energy state, exploratory analysis, landfill gas, non-compliant landfills

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